# FOREST INSECT CONDITIONS ON THE PAYETTE NATIONAL FOREST -- 1969

This report is a record of major insect conditions on the Payette National Forest in 1969. Information for the report was compiled from aerial detection surveys, on-the-ground biological evaluations, and specific infestation centers, or potential problem areas reported by the Forest staff. Any questions or comments concerning this report should be directed to the Boise Zone Office.

An overall reduction of insect activity was noted only on the western division of the Forest, with the exception of increased defoliation in area and intensity by spruce budworm. Especially significant was the decline of Douglas-fir beetle attacks to standing trees in the upper Indian Creek drainage. Elsewhere, losses were expected to either increase or remain generally the same next year. A resurgence of mountain pine beetle activity was noted in river bottom lodgepole pine south and east of McCall on state and private lands. Continued stand attrition was observed in a second-growth ponderosa pine infestation south of Little Payette Lake, where a complex of mountain and western pine beetles are active. Broken topped and windthrown spruce in several sale areas, north and west of McCall, provided habitat for potential spruce beetle buildups. Expedient action was recommended by timber staff personnel, and contract salvage removal of the infested material was initiated. Increases in acreage affected and intensity of defoliation by spruce budworm were recorded throughout the Forest in true firs, Douglas-fir, and spruce. The only noticeable reduction occurred in the lower Big Creek drainage of the Primitive Area. Following is a more comprehensive analysis of these Forest pests.

DOUGLAS-FIR BEETLE - *Dendroctonus pseudotsugae* Hopk.

The Douglas-fir beetle continues to be the Forest's most destructive insect pest in terms of tree killing and volume loss. Large group mortality was observed along the lower South Fork of the Salmon River and main Salmon River breaks.

In November the Washington Office requested a report summarizing Douglas-fir beetle infestation acreage for the past three years. Those figures based on aerial observation of faders caused by attacks the previous year are as follows:

| Year Observed | Acreage |
|---|---|
| 1967 | 1,990 |
| 1968 | 7,280 |
| 1969 | 15,000 |

For comparison, several representative drainages were chosen that have shown killing during the past two-year period, with buildup or declining trends indicated. Counts were taken from aerial survey maps.

Approximate Number of Killed and Faded Trees

| Drainage - District | 1968 | 1969 | Ratio 1968:1969 |
|---|---|---|---|
| Fourmile Cr. (Krassel) | 50 | 260 | 1:5.2 |
| Zena Cr. (Krassel) | 100 | 180 | 1:1.8 |
| Bear Cr. (Warren) | 70 | 270 | 1:3.8 |
| Pony Cr. (Warren) | 130 | 1,340 | 1:10.3 |
| Copper Cr. - Rapid River (Boulder) | 100 | 50 | 1: 0.5 |
| Indian Cr. (Hornet) | 430 | 80 | 1: 0.2 |
| Crooked River (Hornet) | 10 | 40 | 1:4.0 |
| Partridge Cr. (New Meadows) | 200 | 260 | 1:1.3 |
| Keithly Cr. (Weiser) | 160 | 90 | 1:0.56 |
| Benton Cr. (Weiser) | 20 | 80 | 1:4.0 |
| Total | 1,270 | 2,650 | 1:2.1 |

Except for a few areas Douglas-fir beetle activity has been increasing since 1966, and at the present all factors point toward continuing losses during 1970. Overall, we are predicting that mortality will be approximately two trees killed for every tree attacked in 1969.

From time to time, fall fading of trees that were attacked in the spring becomes evident. This condition is normally brought on by unusually rapid drying which is the result of high-temperatures, clear skies, low-humidity, and low-precipitation rates. Weather conditions this past field season followed the aforementioned patterns. As a result considerable fall fading was observed. This is being pointed out as many of your staff have had questions relating to this phenomen.

Detection of new Douglas-fir beetle attacks is a time consuming and laborious procedure. This is due to the group attack habit which occurs in a non-predictable pattern. Therefore, during ground detection of infestation centers it is necessary to almost 100 percent cruise a suspect area for beetle detection. In years when fall fading is evident it is much easier to locate infested groups within the stand. In cases where Forest Managers want to salvage log, fall fading is a good indicator for locating infested salvage sites. It should be noted that not all trees will fade in the fall and stands adjacent to faded groups should be carefully checked for additional beetle activity.

SPRUCE BEETLE - Dendroctonus obesus (Mann.)

Damage to Engelmann spruce in the form of top breakage and windthrow was detected by Forest personnel adjacent to several old sale areas. Evaluations were made in Twenty Mile, Pearl Cr. and Squaw Meadows, north of upper Payette Lake in late July. In all areas spruce beetles were found infesting downed trees, and trees which had incurred top breakage. Adult females were starting their attacks and attack densities were fairly heavy. All indications were that the spruce beetle was starting a potentially serious buildup.

An aerial reconnaissance of the sale areas revealed considerable scattered, windthrown timber in three areas with heaviest damage in Twenty Mile and Pearl Cr. An estimated 450 m.b.f. of spruce was available to the beetle as host material.

In view of the fact that affected areas have existing road systems, the most efficient method of reducing the beetle problem was salvage logging. This recommendation was made to the Forest and by mid-October salvage operations were completed.

A cursory examination of several cutting units on the Hazard Lake-Scribner Lake spruce sale was conducted this fall. An effort was made to assess the success of residual slash burning which contained brood of spruce beetle. Due to the snow depth in the area, it was impossible to accurately evaluate whether slash had been consumed to a point that would cause beetle mortality. A follow-up evaluation will be made at the earliest possible date next year. At that time remedial measures, if any, for control will be recommended.

MOUNTAIN PINE BEETLE - Dendroctonus ponderosae Hopk.

This persistent Forest pest returned to epidemic status in lodgepole pine type along river bottom areas of the North Fork and Lake Fork of the Payette River, south and east of McCall. Approximately 3,300 new faders were observed and recorded in an area where the State of Idaho had conducted a partial control

program two years ago. The accelerated resurgence of populations in these two areas and resulting losses of timber volume in predominantly large diameter lodgepole pine is expected to continue. Beetles are also attacking second-growth ponderosa pine on the southern end of nearby Little Payette Lake. This year, 500 fading trees were observed in that infestation.

A new area of infestation of approximately 150 ponderosa pine was detected east of the Jug Creek Reservoir. A noticeable reduction in tree killing was observed in Laffinwell Creek. More than 200 newly faded lodgepole pine were detected in three groups along the Old Railroad Grade in Kennally Creek. All these infestation centers, with the exception of Jug Creek Reservoir, are on non-Forest lands of mixed ownership. The Jug Creek Reservoir area was not evaluated due to conflicts in work schedules. This area is scheduled for evaluation in 1970.

WESTERN PINE BEETLE - Dendroctonus brevicomis Lec.

The only notable infestation of this Forest pest to overmature ponderosa pine is on the Council Ranger District. Several three-to-ten tree groups were detected on the west facing slopes of tributaries between the Little and Middle Fork of the Weiser River. Little or no change is expected in beetle activity throughout this area during 1970.

IPS spp.

Nominal Ips activity was detected on the Forest this season. Observed group killing of second-growth ponderosa pine was associated with sale areas on the west side Ranger Districts. Possibly, adverse climatic conditions such as the August rains of 1968, may have affected flights of emerging adults and disrupted normal late season egg deposition. Also, the sustained duration of high temperatures as experienced in high-population years of 1966 and 1967 were lacking. Timely slash disposal should be undertaken in all sale areas to reduce the threat of Ips buildups.

SPRUCE BUDWORM - Choristoneura fumiferana complex.

Dynamic increases in acreage infested and defoliation intensity were evident on the Forest this year as spruce budworm populations continued their upward trend. The Forest has been arbitrarily divided into twelve distinctive infestation areas to illustrate the comparison of damage between 1968 and 1969. (Table 1.)

TABLE NO. 1

COMPARISION OF DEFOLIATION INTENSITY, 1968 - 1969 (IN ACRES)*

| Drainage and/or Area | Light | | Moderate | | Heavy | | Total | |
|---|---|---|---|---|---|---|---|---|
| | 1968 | 1969 | 1968 | 1969 | 1968 | 1969 | 1968 | 1969 |
| Big Creek | 46,280 | 42,600 | 32,000 | 13,600 | - | - | 78,280 | 56,200 |
| Main Salmon R., No. Slope between Md. Fk. & So. Fk. | 11,400 | 29,300 | 9,800 | 9,700 | 1,680 | 2,600 | 22,880 | 41,600 |
| So. Fk. Salmon R., between Mackay Bar & Secesh R. Entry | 20,480 | 17,600 | 2,920 | 17,200 | - | 200 | 23,400 | 35,000 |
| Secesh River & Tributaries | 7,120 | 13,100 | 1,120 | 5,600 | 2,120 | 4,300 | 10,360 | 23,000 |
| Upper South Fork of Salmon River (Krassel) | 8,400 | 11,400 | - | 5,400 | - | 2,100 | 8,400 | 18,900 |
| Main Salmon R. No. Slope between So. Fk. & Little Salmon | 29,800 | 24,900 | 23,640 | 23,000 | 1,920 | 18,600 | 55,360 | 66,500 |
| Little Salmon R. and Tributaries | 7,680 | 21,300 | - | 15,900 | - | 900 | 7,680 | 38,100 |
| Rapid River | 800 | 7,000 | - | 2,600 | - | - | 800 | 9,600 |
| Payette Lake & No. Fork | 13,480 | 24,600 | - | 19,300 | - | - | 13,480 | 43,900 |
| Cuddy Mtn. (Crooked R.) | 1,000 | 12,200 | - | 1,200 | - | - | 1,000 | 13,400 |
| Marble Cr. | | 3,000 | | | | | | 3,000 |
| Lost Cr. (Railroad Saddle-South) | | 12,300 | | 700 | | | | 13,000 |
| Total Acres by Intensity | 146,440 | 219,300 | 69,480 | 114,200 | 5,720 | 28,700 | 221,640 | 362,200 |
| Percent of Total by Intensity Class | 66.1 | 60.6+ | 31.3 | 31.5 | 2.6 | 7.9 | | |

*Determined by aerial counts of faded trees at ked the year before.

The only noticeable reduction in both defoliation intensity and acreage affected was recorded in the Big Creek drainage of the Primitive Area. It is assumed that this decreased activity will continue to follow trends detected on the other four Forests of the complex known as the Salmon River infestation.1/

In an endeavor to more closely monitor this current expansion of infested acreage, eleven new egg mass sample plots were established. In addition to the six plots used in 1968 for egg mass collections to forecast defoliation trends, the first six locations in the following table are those used in 1968, the remainder are the new sample plots.

| Location | Defoliation Predicted for 1969 | Defoliation Actual in 1969 | 1969 Egg Masses/ 1,000 sq. in. | Defoliation Predicted for 1970 | By Class |
|---|---|---|---|---|---|
| Little Buckhorn | < 15% | 8.4% | 2.9 | < 15% | Light |
| Cow Creek | < 15% | 17.8% | 1.5 | < 15% | Light |
| Split Creek | 51-90% | 7.1% | 2.0 | < 15% | Light |
| Fall Creek #1 | 51-90% | 68.9% | 6.4 | 25-50% | Moderate |
| Fall Creek #2 | < 15% | 18.2% | 1.8 | < 15% | Light |
| No. F. Payette River | 25-50% | 45.3% | 1.8 | < 15% | Light |
| Sister Cr. (Krassel) | | | 2.0 | < 15% | Light |
| Jackie Cr. (Krassel) | | | 0.0 | < 15% | Light |
| Warren Summit (Warren) | | | 1.0 | < 15% | Light |
| NE End Payette Lake (McCall) | | | 8.8 | 51-90% | Heavy |
| Wagon Bay Cr. (McCall) | | | 2.4 | < 15% | Light |
| Goose Cr. (New Meadows) | | | 8.0 | 25-50% | Moderate |
| Last Chance (New Meadows) | | | .2 | < 15% | Light |
| Hat Creek (New Meadows) | | | 7.2 | 25-50% | Moderate |

1/ Portions of the Boise, Challis, Payette, and Salmon National Forests.

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| Location | Defoliation Predicted for 1969 | Defoliation Actual in 1969 | 1969 Egg Masses/ 1,000 sq. in. | Defoliation Predicted for 1970 | By Class |
|---|---|---|---|---|---|
| Boulder Cr. (Boulder) | | | 2.1 | <15% | Light |
| W. Br. - Weiser River | | | 11.4 | 51-90% | Heavy |
| Smoky (Boulder) | | | 20.2 | 90-100% | Extreme |

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In the past, considerable confusion has centered around what procedures are to be followed when a potentially serious insect infestation is detected. Procedures are spelled out in the F.S.M. (5200 series) and supplements to parent material. We feel that the manual directives are sufficient; however, it may be helpful if procedures were outlined in a more or less simplified manner. With this in mind, the following is presented for your consideration:

Evidence of insect activity detected.

Fill out 5200-1.

Forest Pest Detection Field Report.

If confused - Consult FSM 5221.1 and

R-4 Supplement, August 1965, No. 131.

Mail 5200-1, and well prepared specimens

To: U.S.F.S. - Division of T.M.
Boise Zone Office
3320 Americana Terrace
Boise, Idaho 83706

In cases where immediate action is necessary. Call the Boise Zone Office, 342-2711, ext. 2345.

F.T.S. No. 342-2345

Entomologists at the Zone Office will:

1. Acknowledge your report.
2. Determine if a biological evaluation is necessary. In some cases an evaluation may not be necessary as previous knowledge of the problem may have already been documented.

Biological Evaluation of Infestation

When an evaluation is deemed necessary the zone entomologists will:

1. Contact District of staff personnel and set date for evaluation. In many cases it is not necessary for District or staff personnel to accompany entomologists on evaluations unless they so desire.
2. Make a biological evaluation of the problem area.
3. Prepare a written report to the Forest on biological evaluation findings. This report may or may not recommend control.

Information in this report will be in sufficient detail so that the land manager can make a GO -- NO GO decision on control.

If the decision is "GO" for control, the following steps should be followed:

1. Forest staff will make a resource evaluation as recommended in FSM 5204.4 R-4 Supplement 33, July 1964.
2. Then the Forest will prepare a 5200-10, Project Proposal and justification statement. This can be at the District or Supervisor's Office level.

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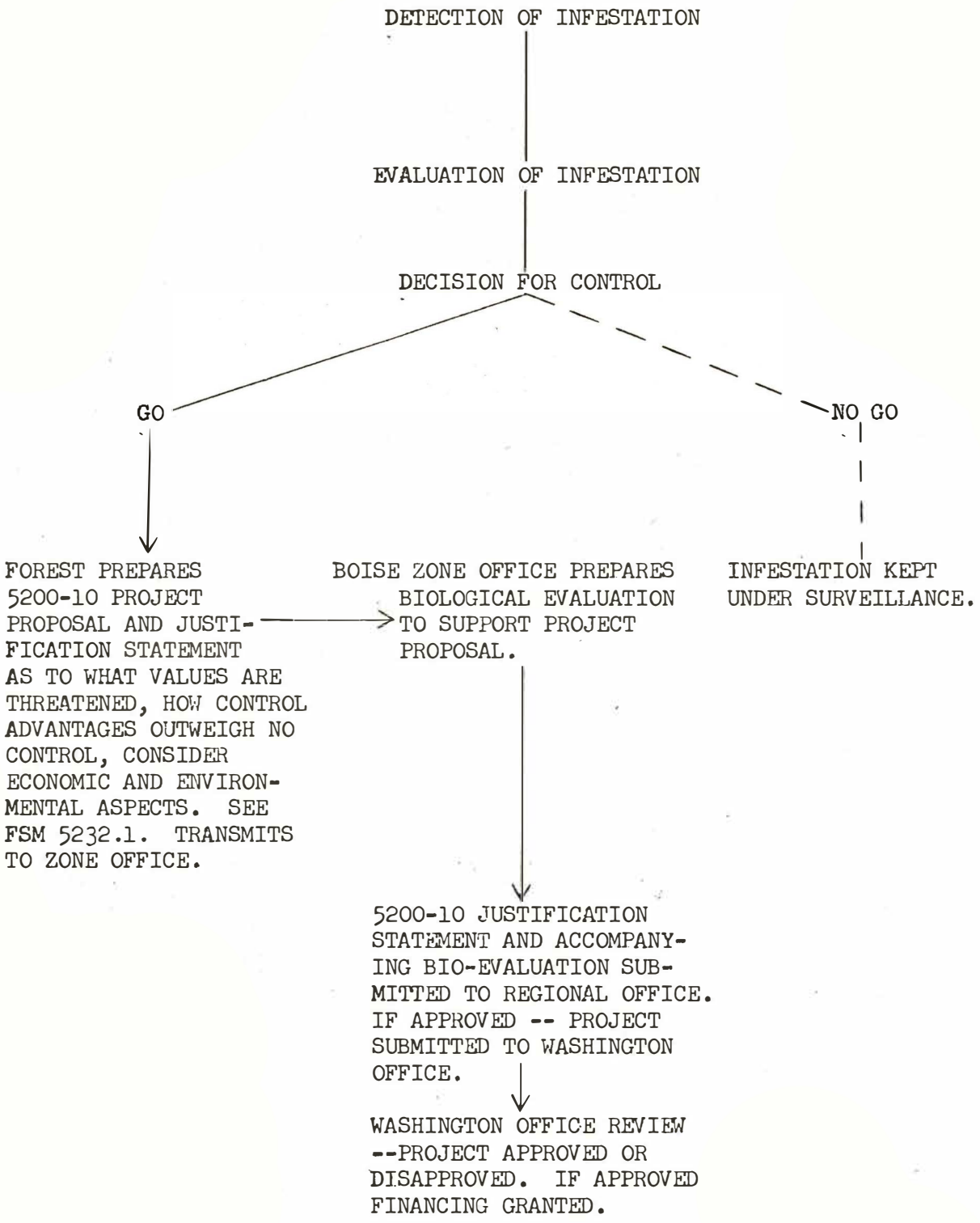
3. The completed 5200-10 should be submitted directly to the Boise Zone Office.

A finalized biological evaluation will be prepared by Zone Office personnel. This will be attached to the 5200-10 and both will be sent to the Regional Office.

The same procedures can be shown in the following diagrammatic form.


DETECTION OF INFESTATION
EVALUATION OF INFESTATION
DECISION FOR CONTROL
GO
NO GO
FOREST PREPARES 5200-10 PROJECT PROPOSAL AND JUSTIFICATION STATEMENT AS TO WHAT VALUES ARE THREATENED, HOW CONTROL ADVANTAGES OUTWEIGH NO CONTROL, CONSIDER ECONOMIC AND ENVIRONMENTAL ASPECTS. SEE FSM 5232.1. TRANSMITS TO ZONE OFFICE.
BOISE ZONE OFFICE PREPARES BIOLOGICAL EVALUATION TO SUPPORT PROJECT PROPOSAL.
INFESTATION KEPT UNDER SURVEILLANCE.
5200-10 JUSTIFICATION STATEMENT AND ACCOMPANYING BIO-EVALUATION SUBMITTED TO REGIONAL OFFICE. IF APPROVED -- PROJECT SUBMITTED TO WASHINGTON OFFICE.
WASHINGTON OFFICE REVIEW --PROJECT APPROVED OR DISAPPROVED. IF APPROVED FINANCING GRANTED.